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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,884

01/17/2006

Keiko Shibata

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EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

05/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,884	Applicant(s) SHIBATA, KEIKO	
	Examiner Shogo Sasaki	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/17/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Amendments to the specification and claims are acknowledged. Cancellation of claims 5-8, 13 and 14 is also acknowledged.

Claims

2. Regarding claim 1, the newly amended limitation “for separating a sample comprising nitropolycyclic aromatic hydrocarbons into at least four separate nitropolycyclic aromatic hydrocarbons including 1-nitropyrene, 1,3-dinitropyrene, 1,6-dinitropyrene and 1,8-dinitropyrene,” which is directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art. The process limitations do not have patentable weight in an apparatus claim. The prior art cited has the capability to perform said limitation.

Also, “a sample” is not claimed as part of the claimed subject matter. Any further references to said elements were not given patentable weight even if those references further limit said unclaimed element. Said recitation does not structurally limit claims.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The separation column specifically designed to separate a sample into four specific isomers of nitro-PAH lacks antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Li et al. (Determination of mono- and di-nitro polycyclic aromatic hydrocarbons by on-line reduction and high-performance liquid chromatography with chemiluminescence detection).

Regarding claim 1, Li et al. disclose an apparatus for analyzing nitropolycyclic aromatic hydrocarbon comprising (Abstract):

- a separation column ("2.5. Diesel exhaust sample" P179/L5-8) for separating a sample comprising nitropolycyclic aromatic hydrocarbons into at least four separate nitropolycyclic aromatic hydrocarbons including 1-nitropyrene, 1,3-dinitropyrene, 1,6-dinitropyrene and 1,8-dinitropyrene ("3.3. Diesel exhaust sample" P181/L4-12. See 1,8-dinitropyrene as one of the nitro-PAH separated. The column of Li et al. will have to be more than capable of separating the isomers of nitro PAH. Note: Li et al. also teaches that 1-nitropyrene, 1,3-dinitropyrene, 1,6-dinitropyrene and 1,8-dinitropyrene are the compounds of interest among the researcher in this field: See introduction.);
- a reduction column for aminating the separated nitropolycyclic aromatic hydrocarbons ("2.3. Online reduction," P178/L1-3); and
- a fluorescence detector ("2.2. Instrumentation," P178-179/L26-27).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
8. Claims 3, 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (Determination of mono- and di-nitro polycyclic aromatic hydrocarbons by on-line reduction and high-performance liquid chromatography with chemiluminescence detection).

Regarding claim 3, Li et al. disclose all of the limitations as set forth above.

Li et al. further disclose that the samples containing isomers of nitro polycyclic aromatic hydro carbon (nitro PAHs) are separated by a silica column ("2.5. Diesel exhaust sample," P179/L5-8; and Fig. 2). Li et al. also disclose that the aminated (reduced) nitro PAHs, and a standard mixtures containing isomers of nitro PAHs (Fig. 2 (A), peaks 3, 5 and 6 represents isomers of nitropyrene; and "2.4. HPLC separation and chemiluminescence," P179/L14-17) are separated by silica C18 column ("2.2. Instrumentation," P178-179/L17-18).

Li et al. do not explicitly disclose the use of C8 column. However the difference between C8 and C18 silica columns are merely in the degrees of hydrophobicities. The instant application is silent to unexpected result in separating nitro PAHs due to the selection of a particular silica packing columns.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Li et al. and replace C18 with C8 column, since it was within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Further, the use of a known column material in the system of Li et al. would amount to nothing more than a use of a known packing material for a separation column for its intended use in a known environment to accomplish an entirely expected result.

Regarding claims 4 and 9, Li et al. disclose all of the limitations as set forth above.

Li et al. further disclose that the reduction column contains platinum/rhodium catalyst ("2.3. Online reduction," P178/L1-3).

Li et al. do not explicitly disclose that platinum/rhodium catalyst is on alumina carrier. However the catalyst of Li et al. must have been provided on an inert carrier and also that instant application is silent to unexpected result for choosing alumina as the carrier, it would have been obvious to one having ordinary skill in the art at the time of the invention to choose an inert support for the column such as alumina, since it was within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Further, the use of a known inert carrier such as alumina in the system of Li et al. would amount to nothing more than a use of a known carrier for a metallic catalyst for its intended use in a known environment to accomplish an entirely expected result.

Response to Arguments

9. In view of the amendments, objections to the specification are withdrawn.
10. The newly presented limitations in amended claims 1, 3, 4 and 9, still do not offer contribution over the prior art (See rejections above). Thus, there still is lack of unity *a posteriori*, and the original restriction requirement is still deemed proper.
11. Applicant's arguments filed 3/24/2009 have been fully considered but they are not persuasive (See paragraphs 2 and 3 above).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shogo Sasaki whose telephone number is (571)270-7071. The examiner can normally be reached on Mon-Thur, 10:00am-6:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

5/12/2009

/Brian R Gordon/
Primary Examiner, Art Unit 1797